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09/420,912	10/20/1999	JON ALLEN FORD	CASE-1	3426

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EXAMINER	
BACHNER, REBECCA M	
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3623	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Detailed Action

This is a first office action on the merit. Claims 1-33 are pending.

Information Disclosure Statement

1. The examiner has reviewed the publications in the Information Disclosure Statement (IDS) provided on April 9, 2001.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

Claim Objections

3. Claims 25 and 26 are objected to because it is not clear whether claims 25 and 26 are multiple dependent claims or independent claims.

If the applicant intended claims 25 and 26 to be a multiple dependent claims dependent on claims 1-24, then claims 25 and 26, are in an improper format because claims 25 and 26 as currently recited fail to further limit the base claims 1-24 as required by 35 U.S.C. §112 4th paragraph. Claim 25 as currently recited incorporates the methods of claims 1-24 into an apparatus. That is to say, claim 25 further limits the

apparatus with the claims 1-24, not visa versa. Claims 26 as currently recited incorporates the methods of claims 1-24 into a computer-readable medium containing instructions. That is to say, claim 26 further limits the instructions with the limitations of claims 1-24, not visa versa.

If claim 25 is meant to be independent, then an "apparatus" is being limited by method steps (i.e., functionality). Functional limitations do not accord any patentable limitations to an apparatus. See §2114.

Claim Rejections - 35 USC § 112

4. Claims 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not support every possible permutation of the claims. The specification as originally filed does not disclose a separate apparatus that performs the methods of any combination of claims 1-24.

5. Claim 25 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, claim 25, recites that the invention is an

apparatus. However, there are no components recited that constitutes what this apparatus is. The claim as currently recited merely sets forth what the apparatus does.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1-24 rejected under 35 U.S.C. 102(e) as being anticipated by Walker et al.

As per claim 1, Walker et al. disclose a method of selecting a resource for a work item, comprising:

determining available resources (technicians) that possess skills needed by the work (task/job) item (see column 1, lines 61-62, column 2, lines 8-12, and column 4, lines 8-23, there will be forecasts predicting when the resources will become available, when the resources, or

technicians, become available they will be assigned work items, or jobs, only resources with the necessary skills will be matched with the work item);

for each of the determined resources, determining a business value of having the resource service the work item (see column 1, lines 65-67, the business value is determined by finding the amount of time it would take the resource, or technician, to complete the work item, or job);

cost to send that guy to do that work

for each of the determined resources, determining a value to the resource of servicing the work item (see column 2, lines 1-5, the importance of the resource to service the work item could be determined by the other affected work items or the agreed maximum response time of a technician completing a work item);

incentive for resource to be assigned task

selecting a determined resource that has a best combined value of the business value and the value to the resource, to serve the work item (see column 2, lines 6-7, selects the combination of the work item and the resource that produces the best score, or lowest cost combination).

As per claim 2, Walker et al. disclose all the limitations of claim 1 wherein determining a business value comprises:

determining the business value weighted by a business value weight corresponding to the work item (see column 7, lines 18-24, a weight is considered when determining the value for the work item);

determining a value to the resource comprises determining the value to the resource weighted by a resource value weight corresponding to the work item (see

column 7, lines 11-24, the cost of the resource working on the work item is weighted with a probability); and

selecting comprises selecting a determined resource that has a best combined value of the weighted business value and the weighted value to the resource (see column 7, lines 35-59, the weighted business values of the work items and the resources are matched that have the lowest combined value).

As per claim 3, Walker et al. disclose all the limitations of the method of claim 2 wherein: determining a business value comprises determining a weighted business value as a product of

(a) the business value weight corresponding to the work item (see column 7, lines 11-24, the weight corresponds to the work item) and

(b) a sum of products of a level of each said needed skill of the resource and a weight of said needed skill of the work item (see column 7, lines 11-24, a cost will be weighted for a work item in which the resource needs a particular skill);

and determining a value to the resource comprises determining a weighted resource treatment value as a products of (c) a resource treatment weight corresponding to the work item (see column 7, lines 11-24, the weight corresponds to the work item) and

(d) a sum of products of each treatment of the resource and a weight of the treatment of the resource (see column 7, lines 11-24, and figures 12 and 14, the costs are determined for the resources with their weights).

As per claim 4, Walker et al. disclose all the limitations of the method of claim 3 wherein the sums of products are scaled sums, and the treatments are scaled treatments (see column 7, lines 11-24, the weights are used to scale the resources and the work items to prioritize their combinations).

As per claim 5, Walker et al. disclose all the limitation of the method of claim 4 wherein: selecting comprises selecting the determined resource that has a highest sum of the weighted business value and the weighted resource treatment value (see column 2, lines 8-12, the resource and the work item are matched using their weighted values, Walker et al. uses the lowest sum combination rather than the largest sum to find the best combination, both ways of scoring allow the work items and resources to be matched based on having high priority work items completed first).

As per claim 6, Walker et al. disclose all the limitations of the method of claim 3 wherein: the resource treatments of a resource comprise a time since the resource became available and a time that the resource has not spent serving work items (see column 1, lines 61-62, the time that the resource is available is forecasted).

As per claim 7, Walker et al. disclose all the limitations of the method of claim 6 wherein the treatments of the resource further comprise a measure of an effect that serving of the work item would have on a goal of the resource (see column 2, lines 8-12,

the resource and the work item with the smallest cost combination are matched, by keeping a small cost combination, the resource can earn a higher profit from the work item).

As per claim 8, Walker et al. disclose all the limitations of the method of claim 7 wherein the measure of the effect comprises a difference between (a) a distance of an actual allocation of worktime of the resource among skills from a goal allocation of the work time of the resource among the skills and (b) a distance of an estimated allocation of the worktime a of the resource among the skills if the resource serves the work item from the goal allocation (see figure 16, and column 7, lines 35-59, the time that the resource completes the work item is predicted and displayed on the matrix; when the resource states that the work item is completed on time, early or late, the matrix changes and the values are recalculated to create low cost matches of the highest priority work items).

As per claim 9, Walker et al. discloses a method of selecting a resource for a work item, comprising:

determining available resources that possess skills needed by the work item (see column 4, lines 8-12, the work item, or job, may require a resource to have a particular skill);

for each of the determined resources, determining a business value comprising a sum across all skills of a product of a skill level of the resource in the skill and a skill

weight of the work item for the skill (see column 7, lines 11-24, every resource, or technician, contains a skill level and is weighted according to this skill level when combined with a work item, or job);

for each of the determined resources, determining a resource treatment value comprising a sum across all resource treatments of a product of a value of the resource for the resource treatment and a weight of the work item for the resource treatment (see column 7, lines 18-24, and 35-59, the resource treatment value is determined using the value and a weight); and

selecting a determined resource that has a best combined score of its business value and its resource treatment value, to serve the work item (see column 2, lines 6-7, selects the combination of the work item and the resource that produces the best score, or lowest cost combination).

As per claim 10, Walker et al. disclose all the limitations of the method of claim 9 wherein the resource treatments of a resource comprise a time since the resource became available, a time that the resource has spent not serving work items, and a measure of an effect that serving the work item would have on a goal of the resource (see column 1, lines 61-62, the time that the resource is available is forecasted and column 14, lines 20-24, the resource that has completed a work item and has no new tasks assigned a new task by the method shown in figure 5, the new allocation would be based on the values calculated using the particular resource and the priority of the available work items to determine the best combination).

As per claim 11, Walker et al. discloses all the limitations of the method of claim 9 wherein:

determining a business value comprises determining a scaled business value comprising the business value scaled by a first scaling factor that is common to all of the determined resources (see figure 12, and column 7, lines 11-24, the weights for probabilities are applied to all the resources having particular skills or other time involved in carrying out a work item);

determining a resource treatment value comprises for each resource treatment, determining a scaled value of the resource comprising the value of the resource for that resource treatment scaled by a scaling factor that is common for that resource treatment to all of the determined resources (see column 6, lines 64-67 through column 7, lines 1-24, the value for the resource is scaled by the weights of the probabilities), and

determining a scaled resource treatment value comprising a sum, scaled by a second scaling factor that is common to all of the determined resources, across all resource treatments of a product of the scaled value of the resource for the resource treatment and a weight of the work item for the resource treatment (see column 6, lines 64-67 through column 7, lines 1-24, the resource is scaled using the weighted probabilities, a technician/job cost is found using the scaled resource and work item); and

selecting comprises selecting a determined resource that has a best sum of its scaled business value and scaled resource treatment value to serve the work item (see column 2, lines 6-7, selects the combination of the weighted, or scaled, work item and resource to produce the best score, or lowest cost combination).

As per claim 12, Walker et al. disclose all the limitations of the method of claim 11 wherein: each scaling factor comprises a fraction having in its denominator a maximum value of the value to which said scaling factor applies of any of the resources (see column 7, lines 11-24, the scaling factor is a probability, therefore, its value can only be a number between zero and one).

As per claim 13, Walker et al. disclose a method of selecting a work item for a resource, comprising: determining available work items that need skills possessed by the resource (see column 1, lines 61-62, column 2, lines 8-12, and column 4, lines 8-23, there will be forecasts predicting when the resources will become available, when the resources, or technicians, become available they will be assigned work items, or jobs; only resources with the necessary skills will be matched with the work item);

for each of the determined work items, determining a business value of having the resource service the work item (see column 1, lines 65-67, the business value is determined by finding the amount of time it would take the resource, or technician, to complete the work item, or job);

Why does job care?

for each of the determined work items, determining a value to the work item of being serviced by the resource (see column 2, lines 1-5, the importance of the resource to service the work item could be determined by the other affected work items or the agreed maximum response time of a resource completing a work item); and

job assessing value ↓ skill? → speed?

selecting a determined work item that has a best combined value of the business value and the value to the work item to be served by the resource (see column 2, lines 6-7, the combination of the work item and the resource that produces the best score, or lowest cost combination).

→ Best suited to the task!! — both!

As per claim 14, Walker et al. disclose all the limitations of the method of claim 13 wherein:

determining business value comprises determining the business value weighted by a business value weight corresponding to the work item (see column 7, lines 18-24, a weight is considered when determining the value for the work item);

determining a value to the work item comprises determining the value to the work item weighted by a work item value weight corresponding to the work item (see column 16, lines 35-55, the work item is given a value and weighted, the weight is given to the work item to ensure its consideration when being matched with resources); and

selecting comprises selecting a determined work item that has a best combined value of the weighted business value and the weighted value to the work item (see column 7, lines 35-59, the weighted business values of the work items and the resources are matched that have the lowest combined value).

As per claim 15, Walker et al. disclose all the limitations of the method of claim 14 wherein: determining a business value comprises determining a weighted business value as a product of (a) the business value weight corresponding to the work item (see column 7, lines 11-24, the weight corresponds to the work item) and

(b) a sum of products of a level of each said needed skill of the resource and a weight of said needed skill of the work item (see column 7, lines 11-24, a cost will be weighted for a work item in which the resource needs a particular skill);

and determining a value to the work item comprises determining a weighted work item treatment value as a product of (c) a work item treatment weight corresponding to the work item (see column 7, lines 11-24, the weight corresponds to the work item) and

(d) a sum of products of each treatment of the work item and a weight of the treatment of the a work item (see column 7, lines 11-24, the costs are determined using the weights for the skills necessary for a work item).

As per claim 16, Walker et al. discloses all the limitations of the method of claim 15, wherein: the sums of products are scaled sums, and the treatments are scaled treatments (see column 7, lines 11-24, the weights are used to scale the resources and the work items to prioritize the combinations).

As per claim 17, Walker et al. disclose all the limitations of the method of claim 16 wherein: selecting comprises selecting the determined work item that has a highest

sum of the weighted business value and the weighted work item treatment value (see column 2, lines 8-12, the resources and the work items are matched using their weighted values, Walker et al. uses in the lowest sum combination rather than the largest sum to find the best combination, both ways of scoring allow the work items and the resources to be matched based on having high priority jobs completed first).

As per claim 18, Walker et al. disclose all the limitations of the method of claim 15 wherein the work item treatments of a work item comprise a time that the work item has been waiting for service and an estimated time that the work item will have to wait for service (see column 3, lines 53-65, and column 4, lines 40-41, a time is determined when the work item should be performed).

As per claim 19, Walker et al. disclose all the limitations of the method of claim 18 wherein the treatments of a work item further comprise a time by which the work item has exceeded its target wait time (see column 6, lines 53-63, the cost function for each work item indicates if the target wait time or agreed upon time has been exceeded).

As per claim 20, Walker et al. discloses all the limitations of the method of claim 18 wherein the estimated wait time that the work item will have to wait for service comprises a product of (a) a ratio of a total number of work items waiting for service and an average number of work items waiting for service and (b) a sum of average wait times of individual said needed skills each weighted by a ratio of the weight of said

individual skill and a sum of the weights of the needed skills. (see figure 16, and column 6, lines 53-63 and column 7, lines 11-24, and 35-59, the time is estimated for a work item and weighted, it is predicted and displayed on the matrix and assigned to a resource who has the skills needed to complete the work item, a ratio and the average wait would be easily determined from the matrix as priority is assigned to every received work item).

As per claim 21, Walker et al. discloses a method of selecting a work item for a resource, comprising: determining available work items that need skills possessed by the resource (see column 4, lines 8-12, the work item, or job, may require a resource, or technician, to have a particular skill);

for each of the determined work items, determining a business value comprising a sum across all skills of a product of a skill level of the resource in the skill and a skill weight of the work item for the skill (see column 7, lines 11-24, every resource contains a skill level and is weighted according to this skill level when combined with a work item;

for each of the determined work items, determining a work item treatment value comprising a sum across all work item treatments of a product of the value of the work item for the work item treatment and a weight of the a work item forth a work item treatment; and (see column 7, lines 11-24, and 35-59, the work item treatment value is determined using the value and weighting for probability); and

selecting a determined work item that has a best combined score of its business value and work item treatment value, to be served by the resource (see column 2, lines

6-7, the combination of the work item and the resource that produces the best score, or lowest cost combination).

As per claim 22, Walker et al. disclose all the limitations of the method of claim 21 wherein: the work item treatments of a work item comprise a time that the work item has spent waiting to be serviced, an estimated time that the item will spend waiting to be serviced, and a time by which the work item has exceeded its target waiting time (see column 16, lines 56-67, through column 17, lines 1-5, the work items are divided into categories of priority, the time dependent cost function is found for every work item which calculates the waiting time).

As per claim 23, Walker et al. disclose all the claims of the method of claim 21 wherein: determining a business value comprises determining a scaled business value comprising the business value scaled by a first scaling factor that is common to all of the determined work items (see figure 12, and column 7, lines 11-24, the weights for probabilities are applied to all the work items needing a particular set of skills);

determining a work item treatment value comprises for each work item treatment, determining a scaled value of the work item comprising the value of the work item forth at work item treatment scaled by a scaling factor that is common forth at work item treatment to all of the determined work items (see column 6, lines 53-63 and column 7, lines 11-24, the value for the work item is scaled by the weights of the probabilities), and

determining a scaled work item treatment value comprising a sum, scaled by a second scaling factor that is common to all of the determined work items, across all

work item treatments of a product of the scaled value of the work item forth a work item treatment and a weight of the work item for the work item treatment (see column 6, lines 53-63 and column 7, lines 11-24, the work item is scaled using the weighted probabilities, a technician/job cost is found using the scaled resource and work item); and

is selecting comprises selecting a determined work item that has a best sum of its is scaled business value and its scaled work item treatment value, to be is served by the resource (see column 2, lines 6-7, selects the combination of the weighted, or scaled, work item and the resource that produces the best score, or lowest cost combination).

As per claim 24, Walker et al. disclose all the limitations of the method of claim 23 wherein: each scaling factor comprises a fraction having in its denominator a maximum value of the a value to which said scaling factor applies of any of the work items (see column 7, lines 11-24, the scaling factor is a probability, therefore, its value can only be a number between zero and one).

As per claim 25, Walker et al. discloses an apparatus that performs the method comprising claims 1-24 (see column 5, lines 49-57, the apparatus performs the methods listed in claims 1-24).

As per claim 26, Walker et al. discloses a computer-readable medium containing instructions which, when executed in a computer, cause the computer to perform the method comprising claims 1-24 (see column 5, lines 49-57, the computer-readable medium executes the methods listed in claims 1-24).

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haq et al. (P.N. 6,275,812) discusses a system or method for human resource skill management. It uses templates and a weighting method to evaluate employees skills.

Crockett et al. (P.N. 6,044,355) discusses a method for scheduling personnel based on skills.

Walker et al. (P.N. 6,088,444) discloses a priority call queuing system for incoming calls. The economic value of the incoming call is determined and their position in the queue is assigned with the highest value being placed first.

Narimatsu et al. (P.N. 5,826,236) discloses a scheduling system that optimizes the match between processes and resources based on attributes and start and end times.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca Bachner whose telephone number is 703-305-1872. The examiner can normally be reached Monday - Friday from 8:00am to 4:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz, can be reached at 703-305-9643.

The fax numbers for the organization where this application or proceeding is assigned are as follows:

703-746-7238 [After Final Communication]

703-746-7239 [Official Communications]

703-746-7240 [For status inquiries, draft communication]

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

RMB
January 23, 2002